

## HEAVY DUTY VEHICLE FLOOR MAT

### BACKGROUND OF THE INVENTION

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The invention relates to floor mats for automobiles and especially floor mats designed for use with construction vehicles, load hauling vehicles, or other heavy duty work vehicles. In such work vehicles the vehicle driver or passengers may be wearing rugged work boots which tend to accumulate mud, moisture, and debris build-up that is ultimately deposited on the floor of the work vehicle. Worker's boots also tend to  
10 be more damaging to an interior floor of the work vehicle due to the heavy and rugged sole construction.

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It has long been the practice to cover the interior areas of an automobile which are subjected to heavy wear with separate floor mats, whether or not such interior areas are previously carpeted. It has been important in the design of floor mats to attempt to collect and store water and debris from shoes of drivers and

15 passengers. Prior floor mat construction have also been designed with means to retain the floor mat in a proper position within the vehicle to prevent twisting or riding up of the floor mat under the vehicle pedals.

It has also been recognized that it is necessary for a floor mat to neatly fit the area it covers without folds, wrinkles, or buckles, which may interfere with the operation of the vehicle. In view of the concerns of the prior art and the additional requirements of a work vehicle application, the apparent advantages and objects of the  
20 invention will be described hereinafter.

It is an object of the invention to provide a durable heavy-duty floor mat for use in construction or other work vehicles. It is a further object of the invention to provide a floor mat for collecting debris and moisture associated with work vehicles. Another object of the invention is to provide an extra-durable surface in areas  
25 of the floor mat most susceptible to wear. A specific object of the invention is to provide a shoe traction surface and a shoe-scraping surface on a floor mat. It is a further object of the invention to achieve a snug fit of a vehicle floor mat without substantial folds or wrinkles.

## SUMMARY OF THE INVENTION

The invention is vehicle floor mat constructed to form a molded flexible mat. The mat has a raised peripheral lip provided on side edges of the molded mat. A first area of the mat is contained within the peripheral lip.

5 The first area has a recessed bottom surface and a plurality of raised protrusions extending from the bottom surface in order to provide a texturized surface, with a first texturized surface pattern. A second area of the mat is also contained within the peripheral lip. The second area has a recessed floor and a plurality of elongated parallel ridges protruding from the recessed floor, providing the second area with a second texturized surface pattern different from the first pattern. The second area further comprises a plurality of  
10 raised bumps on the recessed floor in between the parallel ridges. The vehicle floor mat is designed so that the first area of the molded mat generally covers an upper section and a lower section of a substantial floor area of the mat, and the second area of the molded mat generally covers a middle section of the substantial floor area of the mat.

15 The floor mat has at least one wear plate fixed upon the bottom surface of the molded mat. The wear plates include a heel plate located in the lower section of the mat and a toe plate located in the upper section of the mat. The wear plate is surrounded at its edges by a contoured wall, which is raised and extends up from the bottom surface. The wear plate comprises a metal plate having a texturized surface pattern. The vehicle floor  
20 mat has a back side of the molded mat. The back side has at least one gripping section for gripping the vehicle floor. The gripping section having a plurality of outwardly extending protrusions which are slip-resistant. The gripping sections are located on the back side of the mat opposite the wear plates fixed to the front surface of the mat.

## BRIEF DESCRIPTION OF THE DRAWINGS

25 The above mentioned advantages and objects of the present invention will further become apparent when taken with the detailed description of the invention and with the drawings in which:

Figure 1 is a top plan view of a floor mat according to the present invention;

Figure 2 is a bottom plan view of the floor mat according to the present invention;

Figure 3 is a left side view of Fig. 1;

Figure 4 is a left side view of Fig. 2;

Figure 5 is a front elevational view of Fig. 2;

Figure 6 is a front elevational view of Fig. 1;

5 Figure 7 is a perspective view of the floor mat according to the invention; and

Figure 8 is a cross-sectional view of Fig. 1 taken along line VIII-VIII.

## DETAILED DESCRIPTION OF THE INVENTION

10 Referring to the Figures, the present invention is shown generally as floor mat 10 which has a durable  
construction of molded rubber material, vinyl, or other suitable material which is moldable, flexible, and  
durable. The floor mat is typically positioned on the interior floor surface of a vehicle cab in front of a driver or  
passenger seat to protect the underlying surface. The floor mat 10 has a texturized front surface 12  
comprising a first area 14 having a first recessed bottom surface 16. A pattern of raised diamond shaped  
15 protrusions 18 substantially covers the first area 14. The diamond shaped protrusions 18 cover an upper and  
a lower portion of the floor mat to provide a texturized surface against which a person's shoes can rub to  
remove dirt debris and moisture, which can then collect in the bottom surface 16. The upper portion of the  
floor mat is typically positioned against an inclined surface of the firewall of the vehicle underneath the  
vehicle pedals, and the lower portion of the floor mat is usually horizontally positioned in front of the seat.  
20 The texturized surface of the floor mat 10 further provides traction for a person bearing their shoes against  
allowing for easy positioning of the person within their seat.

The floor mat front surface 12 has a second area 20 with a second recessed bottom surface 22. A plurality of  
raised parallel lengthwise ridges 24 are provided within lengthwise indentations 26. The lengthwise  
25 indentations 26 have a lower bottom surface relative to the second recessed bottom surface 22. The  
arrangement of the ridges and indentations provide an area to scrape and collect dirt, mud and moisture  
from the bottoms of a passenger's shoes. This second area 20 is usually positioned in a transition area  
between the inclined upper portion of the floor mat and the level horizontal lower portion of the mat, so dirt  
and moisture removed or collected from the upper portion of the first area of the floor mat may fall into the

second area, and be collected within the indentations 26. In between the ridges 24 are rows of spaced raised bumps 28 which further aid to scrape mud and provide traction.

A continuous raised inner lip 30 and grooved channel 32 are provided around the first and second areas 14, 16 of the floor mat 10 for containing and collecting dirt, debris, liquid and moisture within the grooved channel. The inner lip 30 is surrounded by discontinuous outer lip sections 34 and a second grooved channel is provided between the inner lip 30 and outer lip sections 34. Additionally, draining channels 36 are spaced between the outer lip sections 34 to allow for excess moisture or liquid to drain from the second channel between the inner lip 30 and the outer lip sections 34. Around the periphery of the floor mat 10 are a number of bendable wing-like flaps 38 which are generally flat and thin. The bendable flaps can be positioned against curved portions or walls of the interior of the vehicle, such as against the inner lower wall of the door sill and the middle hump wall between the floor portions of the front seats. With the flaps positioned against these walls in a curved manner, excess moisture is contained on the floor mat. Since the flaps are relatively thin compared to the overall thickness of the floor mat, the flaps can be trimmed down with scissors if desired, to achieve the best fit of the floor mat for a particular floor area.

The floor mat according to the invention is provided with a texturized metal toe plate 40 and a texturized metal heel plate 42. The toe plate 40 is adjacent the first area of the floor mat which is typically positioned under the vehicle floor pedals so that a driver may extend their foot to the toe plate and bear against the toe plate. Also the toe plate may be positioned under a clutch or other pedal to protect the floor mat surface from excessive pedal wear. The heel plate 42 is provided in the lower center of the floor mat where a passenger's shoes would rest or bear against when not operating the vehicle. The toe plate 40 and heel plate 42 are provided with a pattern of raised almond-shaped ridges 44 arranged in a criss-crossed pattern of groups of five ridges or any other diamond shape pattern. The ridges 44 provide a scraping surface for shoes and a wear resistant plate surface is general. The toe plate 42 and heel plate 44 are positioned on the recessed bottom 16 of the floor mat and are contained within surrounding walls 46, 48, respectively, which are raised from the recessed bottom. The toe and heel plates are maintained in position by a plurality of rivets 50. The rivets pass through the floor mat at rivet holes 52, as view in Fig. 8.

Referring to Figs. 2-6, the back surface of the floor mat 10 will be described. The back surface of the floor mat is substantially smooth and a reverse pattern of the front surface of diamond protrusions, ridges and bumps, and lips and channels, remains from the floor mat molding process. Two main gripping sections 54, 56 are provided behind the attached toe and heel plates 42, 44, respectively. The gripping sections 54, 56 comprise a plurality of vertically extending protrusions 58 which are uniformly spaced thereover. Additional gripping portions 60 are spaced in small clusters of five protrusions 58 between the reverse pattern of diamond protrusions at the upper and lower sections of the floor mat 10. The gripping sections 54, 56 and gripping portions 60 bear against the underlying vehicle floor surface and the protrusions 58 provide a slip resistant grip between the floor surface and the floor mat. The back surface of the floor mat is provided with reinforcing ribs 62 backing the inner lip 30 to maintain the raised formation of the inner lip.

It will be understood that the shaped of the depicted floor mat 10 fits a profile of the driver's side of a work vehicle. The floor mats of the invention are also useful on the passenger side and back seat floor areas, and in cargo areas of a vehicle. In use the floor mat is simply positioned on the floor to be protected. In the present embodiment the left side of the floor mat would be positioned against the door sill, the right side positioned against the center hump, and the top side of the floor mat would be positioned against the surface of the firewall at the vehicle pedals. Upon a slight downward pressure exerted on the mat, the protrusions on the backside of the floor mat interact with the floor surface, carpeted or otherwise to maintain the floor mat position. The double lip surrounding the edges of the floor mat is designed to contain the contents collected on the mat.

In due course the flexible floor mat is easily and readily removed from the vehicle by simply lifting it vertically and out from the vehicle. It will be understood that the mats of the invention are custom made to conform with a particular vehicles interior area. Excess floor mat material can ultimately be trimmed of the molder floor mat and discarded as waste. The resulting floor mat has a high quality construction and is laid within the floor compartment with no substantial folds or wrinkles. Having thus described the invention in its preferred embodiment, it will be understood by those skilled in the art that modifications or changes in details of the invention may be implemented without departing from the spirit and scope of the invention as defined in the following claims.